

Mineral Industry Surveys

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VANADIUM IN NOVEMBER 2005

Reported domestic consumption of vanadium in November 2005 was about 5% less than that of the previous month and was about 10% less than that of November 2004, according to the U.S. Geological Survey. Consumer stocks of vanadium, in all forms, were 398 metric tons (t) at the beginning of 2005 and 365 t at the end of November.

According to Ryan's Notes (2005b), U.S. ferrovanadium (FeV) prices ranged from \$24.194 to \$24.794 per pound of vanadium content in November, as compared with \$25.875 to \$26.813 in October. European FeV prices ranged from \$49.375 to \$52.000 per kilogram in November, as compared with \$59.875 to \$62.875 in October. Vanadium pentoxide (V₂O₅) prices ranged from \$11.125 to \$11.750 per pound in November as compared with \$12.438 to \$13.438 in October.

Metallurg Vanadium announced plans to build a spent catalyst calcining facility in Alberta, Canada, to process spent catalysts from the Alberta tar sands projects. In addition, Metallurg planned to expand its FeV and ferronickel-molybdenum production capability at its Cambridge, OH, processing facility. The Alberta facility would provide additional feed material to the expanded Cambridge operation, although Metallurg did not specify how much additional

capacity would be added. Completion for both projects was anticipated by the end of 2007 (Ryan's Notes, 2005a).

Precious Metals Australia, Ltd. (PMA) selected The Hatch Group to study the feasibility of reopening the closed Windimurra Mine in Western Australia. The first stage, to be completed in December 2005, was to identify process and plant design options and estimate capital and operating costs. The second phase, to be completed by May 2006, would finalize the engineering design and update cost estimates. Hatch would also analyze market risks and strategy and prepare a new ore reserve estimate. PMA had previously announced the re-opened Windimurra project would exceed Windimurra's previous capacity of 7,700 t (17 million pounds) of V₂O₅ (Platts Metals Week, 2005).

References Cited

- Platts Metals Week, 2005, Precious Metals Australia names Hatch for vanadium study: Platts Metals Week, v. 76, no. 46, November 14, p. 3.
Ryan's Notes, 2005a, Metallurg Vanadium plans to build Alberta facility: Ryan's Notes, v. 11, no. 48, November 28, p. 3.
Ryan's Notes, 2005b, [untitled]: Ryan's Notes, v. 11, no. 49, December 5, p. 10.

TABLE 1
U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM¹

(Kilograms, contained vanadium)

	2004		2005			
	Consumption	Stocks	October		November	
			Consumption	Stocks	Consumption	Stocks
Ferrovandium ²	3,610,000	298,000	282,000 ^r	305,000 ^r	272,000	327,000
Vanadium-aluminum alloy	W	W	W	W	W	W
Other ³	449,000	101,000	22,800	23,300	18,600	38,100
Total	4,050,000	398,000	305,000 ^r	328,000 ^r	290,000	365,000

^rRevised. W Withheld to avoid disclosing company proprietary data; included with "Other."

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

³Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

TABLE 2
U.S. CONSUMPTION OF VANADIUM, BY END USE¹

(Kilograms, contained vanadium)

	2004	2005		
		October	November	Year to date
Steel:				
Carbon	1,300,000	68,900	67,900	802,000
High-strength low-alloy	1,160,000	99,000	88,600	992,000
Stainless and heat-resisting	60,000	5,080	5,080	54,900
Full alloy	1,060,000	81,700	82,400	929,000
Tool	239,000	27,500	27,500	384,000
Total steel	3,820,000	282,000	272,000	3,160,000
Superalloys	16,600	720 ^r	855	8,740
Miscellaneous and unspecified ²	215,000	22,400	18,100	613,000
Total consumption	4,050,000	305,000 ^r	290,000	3,780,000

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes cast irons, alloys excluding steel and superalloys, chemical and ceramic uses, and other miscellaneous and unspecified uses.

TABLE 3
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND
VANADIUM METAL, INCLUDING WASTE AND SCRAP¹

(Kilograms, gross weight)

	Aluminum-vanadium master alloy		Vanadium metal, including waste and scrap	
	Quantity	Value	Quantity	Value
Imports for consumption:				
2004	19,100	\$66,700	31,200	\$1,710,000
2005:				
August	--	--	899	171,000
September	--	--	10,700	631,000
October:				
Germany	--	--	96	56,800
United Kingdom	1	6,620	--	--
Total	1	6,620	96	56,800
Year to date ²	2	10,400	39,000	2,440,000
Exports:				
2004	10,900,000	24,000,000	522,000	7,760,000
2005:				
August	1,640,000	5,260,000	8,960	464,000
September	880,000	2,990,000	24,200	1,760,000
October:				
Brazil	15,600	49,400	--	--
Canada	274,000	892,000	--	--
China	1,900	8,190	--	--
Germany	--	--	77	8,860
Hong Kong	683	8,890	--	--
India	6,990	36,600	--	--
Japan	2,340	10,000	12,200	223,000
Malaysia	778	10,100	--	--
Mexico	743,000	1,510,000	--	--
Thailand	17,400	80,200	--	--
Taiwan	15,300	71,200	--	--
United Kingdom	--	--	18,900	960,000
Total	1,080,000	2,680,000	31,200	1,190,000
Year to date	10,300,000	30,800,000	259,000	14,600,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revisions to previous months' data.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND
OTHER OXIDES AND HYDROXIDES OF VANADIUM¹

(Kilograms, contained vanadium)

	Ferrovanadium		Vanadium pentoxide (anhydride) ²		Other oxides and hydroxides of vanadium	
	Quantity	Value	Quantity	Value	Quantity	Value
Imports for consumption:						
2004	3,020,000	\$62,100,000	1,040,000	\$8,600,000	120,000	\$1,650,000
2005:						
August	110,000	6,740,000	225,000	7,760,000	24,300	107,000
September	147,000	8,610,000	122,000	4,030,000	30,400	251,000
October:						
Australia	--	--	20,500	484,000	12,400	351,000
Austria	--	--	7,440	177,000	--	--
Canada	48,200	2,560,000	--	--	--	--
China	--	--	19,200	345,000	--	--
Czech Republic	200,000	7,710,000	--	--	--	--
Germany	--	--	--	--	--	--
Japan	--	--	--	--	--	--
Russia	--	--	--	--	--	--
South Africa	--	--	157,000	4,700,000	40,800	726,000
Total	248,000	10,300,000	204,000	5,710,000	53,200	1,080,000
Year to date ³	11,700,000	116,000,000	1,160,000	44,200,000	176,000	5,240,000
Exports:						
2004	267,000	8,770,000	240,000	2,090,000	584,000	4,140,000
2005:						
August	18,100	1,010,000	43,200	862,000	43,400	1,330,000
September	38,900	1,260,000	3,910	166,000	154,000	1,430,000
October:						
Austria	--	--	4,060	157,000	--	--
Belgium	--	--	18,200	392,000	--	--
Brazil	--	--	--	--	2,730	38,600
Canada	27,300	570,000	--	--	10,700	109,000
China	20,200	1,210,000	--	--	--	--
Germany	--	--	1,000	27,500	--	--
Italy	--	--	27,000	488,000	--	--
Mexico	358	11,900	--	--	--	--
Netherlands	22,600	911,000	--	--	--	--
New Zealand	--	--	320	11,900	--	--
Trinidad and Tobago	--	--	--	--	8,030	71,500
Total	70,500	2,700,000	50,600	1,080,000	21,500	219,000
Year to date	436,000	17,200,000	225,000	4,650,000	637,000	12,500,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include catalysts containing vanadium pentoxide.

³May include revisions to previous months' data.

Source: U.S. Census Bureau.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG¹

(Kilograms, contained vanadium pentoxide)

	Ash and residues		Ash and residues (not from the manufacture of iron and steel)		Slag, from the manufacture of iron and steel	
	Quantity	Value	Quantity	Value	Quantity	Value
2004	4,260,000	\$8,520,000	11,100,000	\$2,000,000	244,000,000	\$10,400,000
2005:						
August	460,000	1,180,000	523,000	92,300	35,500,000	1,590,000
September	400,000	999,000	433,000	58,900	48,000,000	918,000
October:						
Canada	--	--	702,000	108,000	50,300,000	691,000
China	--	--	--	--	--	--
Mexico	618,000	1,440,000	--	--	--	--
Spain	--	--	--	--	110,000	385,000
Trinidad and Tobago	--	--	--	--	890,000	159,000
Total	618,000	1,440,000	702,000	108,000	51,300,000	1,240,000
Year to date ²	3,870,000	8,630,000	5,950,000	949,000	437,000,000	9,510,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revisions to previous months' data.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS¹

(Kilograms, contained vanadium)

	Sulfates		Vanadates	
	Quantity	Value	Quantity	Value
2004	500	\$19,100	74,700	\$1,150,000
2005:				
August	--	--	12,800	622,000
September	--	--	--	--
October:				
China	--	--	50	3,530
Korea, Republic of	--	--	9,000	25,700
Total	--	--	9,050	29,200
Year to date ²	--	--	76,500	2,170,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²May include revisions to previous months' data.

Source: U.S. Census Bureau.